File 348:EUROPEAN PATENTS 1978-2004/Jul W02
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File 349:PCT Fulltext 1979-2002/UB=20040708,UT=20040701
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Set	Items	Description
S1	1312	GARBAGE(2N)COLLECT? OR AUTOMAT?(2N)MEMOR???(2N)MANAG?
S2	69	(CALL()STACK? ? OR REGISTER? ?)(10N)HEAP
S3	260	(POINTER? ? OR IDENTIF???? OR IDENTIFICATION OR ADDRESS??? OR MAP????)(7N)HEAP
S4	22	(POINTER? ? OR IDENTIF???? OR IDENTIFICATION OR ADDRESS??? OR MAP????)(7N)(CALL()SITE? ?)
S5	1789	DESCRIPTOR? ?(10N)(STACK()FRAME? ? OR REGISTER? ? OR TABLE? ? OR OFFSET? ? OR OFF()SET? ?)
S6	7168	(OFFSET? ? OR OFF()SET? ?)(7N)(POINTER? ? OR IDENTIF???? OR IDENTIFICATION OR ADDRESS??? OR MAP???? OR HEAP? ? OR STACK(-)FRAME? ?)
S7	147	CALL()STACK? ?
S8	76	CALL()SITE? ?
S9	0	FIRST()CALL()SITE? ?
S10	8739	DESCRIPTOR? ?
S11	2338	HEAP? ?
S12	138870	OFFSET? ? OR OFF()SET? ?
S13	329	STACK()FRAME? ?
S14	12	S1(30N)S2
S15	57	S1(30N)S3
S16	1	S1(30N)S4
S17	1	S1(30N)S5
S18	11	S1(30N)S6
S19	11	S1(30N)S7
S20	3	S1(30N)S8
S21	14	S1(30N)S10
S22	158	S1(30N)S11
S23	23	S1(30N)S12
S24	7	S1(30N)S13
S25	42	S14 OR S16:S21 OR S24

25/3,K/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01389030
Method and system for compiling multiple languages
Verfahren und System zum Kompilieren von mehreren Sprachen
Methode et systeme pour compiler plusieurs langages
PATENT ASSIGNEE:
MICROSOFT CORPORATION, (749861), One Microsoft Way, Redmond, Washington 98052-6399, (US), (Applicant designated States: all)
INVENTOR:
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LEGAL REPRESENTATIVE:
Bohnenberger, Johannes, Dr. et al (55291), Meissner, Bolte & Partner Postfach 86 06 24, 81633 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 1178404 A2 020206 (Basic)
EP 1178404 A3 040616
APPLICATION (CC, No, Date): EP 2001115100 010621;
PRIORITY (CC, No, Date): US 598105 000621
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: G06F-009/45
ABSTRACT WORD COUNT: 127
NOTE:
Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200206	1028
SPEC A	(English)	200206	7168
Total word count - document A			8196
Total word count - document B			0
Total word count - documents A + B			8196

...CLAIMS 5, wherein the runtime environment further comprises:
a stack walker that keeps track of a **call stack** during runtime; and
a **garbage collector** for managing memory allocation during runtime.
7. A common language file produce by a front...

25/3,K/2 (Item 2 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01367871
Apparatus and method for collecting resources which became unnecessary
Anordnung und Verfahren zum Sammeln von nicht mehr benotigten Betriebsmitteln
Dispositif et methode pour collecter des ressources devenues non necessaires
PATENT ASSIGNEE:
MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD., (216883), 1006, Oaza-Kadoma, Kadoma-shi, Osaka 571-8501, (JP), (Applicant designated States: all)
INVENTOR:
Shiomi, Takakazu, 30-5 Tohda-cho, Hirakata-shi, Osaka-fu, 573-0045, (JP)
Hayama, Satoru, 2-12-506 Sumiyoshi-dai, Higashinada-ku, Kobe-shi,

Hyogo-ken, 658-0062, (JP)
Hiramoto, Takeshi, 4-6-B201, Minamishouwa-machi, Kaita-cho, Aki-gun, Hiroshima-ken, 736-0065, (JP)
Kubooka, Yuko, 2-7-25-501, Hikari-machi, Higashi-ku, Hiroshima-shi, Hiroshima-ken, 732-0052, (JP)
Doi, Shigenori, 6-16-58 Kawauchi, Asaminami-ku, Hiroshima-shi, Hiroshima-ken, 731-0102, (JP)
LEGAL REPRESENTATIVE:
Crawford, Andrew Birkby et al (29761), A.A. Thornton & Co. 235 High Holborn, London WC1V 7LE, (GB)
PATENT (CC, No, Kind, Date): EP 1164485 A2 011219 (Basic)
APPLICATION (CC, No, Date): EP 2001304329 010515;
PRIORITY (CC, No, Date): JP 2000141492 000515; JP 2000141493 000515; JP 2000398746 001227
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: G06F-009/50; G06F-009/46
ABSTRACT WORD COUNT: 84
NOTE:
Figure number on first page: 6

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200151	4158
SPEC A	(English)	200151	14258
Total word count - document A			18416
Total word count - document B			0
Total word count - documents A + B			18416

...SPECIFICATION collection on the divided heap area, and retries to acquire the object area after the **garbage collection** .
The divided heap area acquiring unit 104b receives a divided heap area acquisition instruction from the object area acquiring unit 104a, and acquires a divided **heap** area in the memory **heap** area. The divided **heap** area acquiring unit 104b then **registers** a combination of an ID of a class loader object and information about the divided...

...CLAIMS heap areas allocated to the applications, and
when the application is started, the allocating means **registers** a correspondence of the application and the divided **heap** area allocated to the application, in the table in the table holding means.
42. An application execution apparatus for managing a memory heap area for applications which requires **garbage collection** , comprising:
system heap area allocating means for allocating the memory heap area as a system...

...heap areas allocated to the applications, and

when the application is started, the allocating step **registers** a correspondence of the application and the divided **heap** area allocated to the application, in the table in the table holding unit.

49. A memory heap management method for managing a memory heap area for applications which requires **garbage collection** , comprising:
a system heap area allocating step for allocating the memory heap area as a...

25/3,K/3 (Item 3 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01140156
METHOD, APPARATUS, AND ARTICLE OF MANUFACTURE FOR FACILITATING RESOURCE MANAGEMENT FOR APPLICATIONS HAVING TWO TYPES OF PROGRAM CODE
VERFAHREN, VORRICHTUNG UND HERGESTELLTER GEGENSTAND ZUM ERLEICHTERN DER

RESSOURCEVERWALTUNG FUR APPLIKATIONEN MIT ZWEI TYPEN VON PROGRAMMKODES

PROCEDE, DISPOSITIF ET ARTICLE INDUSTRIEL SIMPLIFIANT LA GESTION DES RESSOURCES DANS LE CAS D'APPLICATIONS COMPORTANT DEUX TYPES DE CODE DE PROGRAMME

PATENT ASSIGNEE:
Sun Microsystems, Inc., (2616592), 4150 Network Circle, Santa Clara, California 95054, (US), (Proprietor designated states: all)
INVENTOR:
AGESEN, Ole, 154 Laurel Drive, Needham, MA 02492, (US)
DETLEFS, David, L., 94 Depot Street, Westford, MA 01886, (US)
WHITE, Derek, R., 54 Dana Road, Reading, MA 01867, (US)
LEGAL REPRESENTATIVE:
Beresford, Keith Denis Lewis et al (28275), Beresford & Co., 2-5 Warwick Court, High Holborn, London WC1R 5DH, (GB)
PATENT (CC, No, Kind, Date): EP 1105804 A1 010613 (Basic)
EP 1105804 B1 021113
WO 2000010090 000224
APPLICATION (CC, No, Date): EP 99942129 990812; WO 99US18321 990812
PRIORITY (CC, No, Date): US 134548 980817
DESIGNATED STATES (Pub A): AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; (Pub B): GB
INTERNATIONAL PATENT CLASS: G06F-012/02
NOTE:
No A-document published by EPO
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200246	631
CLAIMS B	(German)	200246	604
CLAIMS B	(French)	200246	772
SPEC B	(English)	200246	6250
Total word count - document A			0
Total word count - document B			8257
Total word count - documents A + B			8257

...SPECIFICATION of the root set includes global variables used to hold references to objects outside a **stack frame** , which makes the objects available to multiple methods.

A **garbage collector** may be exact or conservative in how it treats different sources of references, such as...Java VM uses an indicator in a special frame of Java code stack to control **garbage collection** of the native code objects. This implementation is satisfactory for conservative **garbage collection** but it does not prevent the "leaking" of direct object references outside the JNI **stack frame** . In other words, direct references to objects may be lost during a **garbage collection** cycle when all of the references may not be located in the JNI **stack frame** . Consequently, such an implementation of the JNI does not support an exact collection algorithm.

There is, therefore, a need for a mechanism that facilitates flexible **garbage collection** for memory resources for an application having two types of program code, native code familiar...i" are never in use at the same time, a single slot "s" in a **stack frame** for "m" might be used for both. In such a situation, **garbage collector** 122a has difficulty determining whether to consider slot "s" a pointer or a primitive. If...

...associated with that particular instruction. Therefore, when a safe point is reached during execution, a **garbage collector** can determine from the stack map where each pointer is located in the **stack frame** at the time the respective instruction is executed. Using this information, the **garbage collector** knows exactly where all pointers are located. Stack maps can be generated at any point before **garbage collection** . For example, they can be generated when the program is compiled or during program execution.

Figure 4 is a block diagram illustrating an example of a stack map. In the **stack frame** 410 associated with a method of thread n, method pointer 412 points to method block...determine pointer locations with certainty.

To find the stack map associated with a particular method, **garbage**

collector 122a first steps through each thread data structure to access the target stacks, and uses the method pointer in the **stack frame** to access the corresponding set of stack maps. **Garbage collector** 122a then uses the stack map corresponding to the line of code at which the method was stopped to determine the **stack frame** locations having pointers referencing objects. Further details on the use of a stack map in this fashion for **garbage collection** can be found in O. Agesen, D. Detlefs, J.E.B. Moss, "Garbage Collection and...

...indirect pointer may copy a direct pointer value into a location not known by the **garbage collector** to contain such a pointer. Thus, **garbage collection** is not permitted during inconsistent regions of program code because it is not possible to determine exactly which slots in the **stack frame** are pointers to objects in the heap. If the **garbage collector** relocates an object (as is often the case with a compacting **garbage collector** , for example), the collector may fail to update direct pointers that were obtained by dereferencing

25/3,K/4 (Item 4 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01065202
Methods of refining descriptors
Verfahren zum Verfeinern von Deskriptoren
Methode d'affinage de descripteurs
PATENT ASSIGNEE:
Hewlett-Packard Company, A Delaware Corporation, (3016020), 3000 Hanover Street, Palo Alto, CA 94304, (US), (Proprietor designated states: all)
INVENTOR:
Riverieulx de Varax, Aymeric, 8 chemin J.B. Gilliard, 69300 Caluire, (FR)
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Moreau Jean-Jacques, 91B Rue de Dinan, 35000 Rennes, (FR)
LEGAL REPRESENTATIVE:
Coker, David Graeme et al (29395), Hewlett-Packard Limited Intellectual Property Section Building 2 Filton Road, Stoke Gifford, Bristol BS34 8QZ, (GB)
PATENT (CC, No, Kind, Date): EP 938053 A1 990825 (Basic)
EP 938053 B1 030820
APPLICATION (CC, No, Date): EP 99301223 990219;
PRIORITY (CC, No, Date): EP 98301261 980220; GB 9825662 981125
DESIGNATED STATES: DE; FR; GB
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: G06F-017/30
ABSTRACT WORD COUNT: 85
NOTE:
Figure number on first page: 4

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	199934	372
CLAIMS B	(English)	200334	404
CLAIMS B	(German)	200334	405
CLAIMS B	(French)	200334	474
SPEC A	(English)	199934	4638
SPEC B	(English)	200334	4662
Total word count - document A			5011
Total word count - document B			5945
Total word count - documents A + B			10956

...SPECIFICATION most popular description of the piece of data given by people using the system. The **descriptor** with the smallest weight is not very relevant to the piece of data, and if its weight continues to decrease then at some point the **descriptor** may be removed (**garbage collected**).

Feedback from users may be explicit (e.g. users provide comments on how useful or...

...SPECIFICATION most popular description of the piece of data given by people using the system. The **descriptor** with the smallest weight is not very relevant to the piece of data, and if its weight continues to decrease then at some point the **descriptor** may be removed (**garbage collected**).
Feedback from users may be explicit (e.g. users provide comments on how useful or...

25/3,K/5 (Item 5 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00962956
Method and apparatus for locating nodes in a carded heap
Verfahren und Vorrichtung zur Lokalisierung von Knoten in einem in Karten geteilten Haufen
Procede et dispositif de localisation de noeuds dans un tas partage en cartes
PATENT ASSIGNEE:
SUN MICROSYSTEMS, INC., (1392730), 2550 Garcia Avenue, Mountain View, CA 94043, (US), (Applicant designated States: all)
INVENTOR:
Wolczko, Mario I., 580 Arastradero Road, No. 503, Palo Alto, California 94306, (US)
Ungar, David M., 844 Driftwood Drive, Palo Alto, California 94303, (US)
LEGAL REPRESENTATIVE:
Foster, Mark Charles (86071), Edward Evans & Co., Chancery House, 53-64 Chancery Lane, London WC2A 1SD, (GB)
PATENT (CC, No, Kind, Date): EP 874319 A2 981028 (Basic)
EP 874319 A3 000223
APPLICATION (CC, No, Date): EP 98303165 980423;
PRIORITY (CC, No, Date): US 842136 970423
DESIGNATED STATES: DE; FR; GB
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: G06F-012/02
ABSTRACT WORD COUNT: 158
NOTE:
Figure number on first page: 2

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9844	1467
SPEC A	(English)	9844	15687
Total word count - document A			17154
Total word count - document B			0
Total word count - documents A + B			17154

...SPECIFICATION A value used as an address to a node. By locating pointers to nodes a **garbage collection** algorithm determines which nodes are live.
Link (horizontal bar) A **pointer** equivalent comprised of an **offset** into the creation area and a validation value that associates the link with a pointer...and a third active node 681. The garbage node 679 is referenced by the node **descriptor** 665 and because a link, instead of a direct pointer, is stored in an active node link 683 the **garbage collection** process can reference the garbage node 679 without affecting the liveness of the garbage node...

25/3,K/6 (Item 6 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00962947
Method and apparatus for optimizing exact garbage collection of objects having intermingled pointer and non-pointer values
Verfahren und Gerat zur Optimierung der exakten Garbagesammlung von Objekten mit sowie Zeigerwerten als Nonzeigerwerten
Procede et dispositf pour optimiser le regroupement exact des positions inutilisees des objets ayant des valeurs pointeur et non-pointeur
PATENT ASSIGNEE:
SUN MICROSYSTEMS, INC., (1392730), 2550 Garcia Avenue, Mountain View, CA 94043, (US), (applicant designated states: AT;BE;CH;CY;DE;DK;ES;FI;FR;GB;GR;IE;IT;LI;LU;MC;NL;PT;SE)
INVENTOR:
Ungar, David M., 844 Driftwood Drive, Palo Alto, California 94303, (US)
Wolczko, Mario, 580 Arastradero Road, No. 503, Palo Alto, California 94306, (US)
LEGAL REPRESENTATIVE:
Foster, Mark Charles (86071), Edward Evans & Co., Chancery House, 53-64 Chancery Lane, London WC2A 1SD, (GB)
PATENT (CC, No, Kind, Date): EP 874309 A2 981028 (Basic)
EP 874309 A3 990421
APPLICATION (CC, No, Date): EP 98303151 980423;
PRIORITY (CC, No, Date): US 838958 970423
DESIGNATED STATES: DE; FR; GB; NL; SE
INTERNATIONAL PATENT CLASS: G06F-012/02; G06F-009/44;
ABSTRACT WORD COUNT: 103

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9844	1459
SPEC A	(English)	9844	15330
Total word count - document A			16789
Total word count - document B			0
Total word count - documents A + B			16789

...SPECIFICATION A value used as an address to a node. By locating pointers to nodes a **garbage collection** algorithm determines which nodes are live.
Link -- A **pointer** equivalent comprised of an **offset** into the creation area and a validation value that associates the link with a pointer...and a third active node 681. The garbage node 679 is referenced by the node **descriptor** 665 and because a link, instead of a effect pointer, is stored in an active node link 683 the **garbage collection** process can reference the garbage node 679 without affecting the liveness of the garbage node...

25/3,K/7 (Item 7 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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00962885
A method and apparatus for locating object pointers used within exact garbage collection
Verfahren und Vorrichtung zum Auffinden von Objekt-Zeigern, fur die Erkennung/Sammlung von nicht-referenzierten Daten-Objekten
Procede et dispositif de traitement numerique permettant de localiser des pointeurs pour collecter des objets de donnees inutiles
PATENT ASSIGNEE:
SUN MICROSYSTEMS, INC., (1392737), 901 San Antonio Road, MS PAL1-521, Palo Alto, California 94043, (US), (Proprietor designated states: all)
INVENTOR:
Wolczko, Mario I., 580 Arastradero Road No. 503, Palo Alto, California 94306, (US)
Ungar, David M., 844 Driftwood Drive, Palo Alto, California 94303, (US)
LEGAL REPRESENTATIVE:
Hanna, Peter William Derek (72342), Peter Hanna Associates 11 Mespil Road , Dublin 4, (IE)

PATENT (CC, No, Kind, Date): EP 874318 A2 981028 (Basic)
EP 874318 A3 990421
EP 874318 B1 010725
APPLICATION (CC, No, Date): EP 98303014 980420;
PRIORITY (CC, No, Date): US 842195 970423
DESIGNATED STATES: DE; FR; GB; NL; SE
INTERNATIONAL PATENT CLASS: G06F-012/02
ABSTRACT WORD COUNT: 144
NOTE:
Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	199844	1527
CLAIMS B	(English)	200130	789
CLAIMS B	(German)	200130	663
CLAIMS B	(French)	200130	981
SPEC A	(English)	199844	15476
SPEC B	(English)	200130	14924
Total word count - document A			17006
Total word count - document B			17357
Total word count - documents A + B			34363

...SPECIFICATION A value used as an address to a node. By locating pointers to nodes a **garbage collection** algorithm determines which nodes are live.

Link - A **pointer** equivalent comprised of an **offset** into the creation area and a validation value that associates the link with a pointer...and a third active node 681. The garbage node 679 is referenced by the node **descriptor** 665 and because a link, instead of a direct pointer, is stored in an active node link 683 the **garbage collection** process can reference the garbage node 679 without affecting the liveness of the garbage node...

...SPECIFICATION bar) A value used as an address to anode. By locating pointers to nodes a **garbage collection** algorithm determines which nodes are live.

Link (horizontal bar) A **pointer** equivalent comprised of an **offset** into the creation area and a validation value that associates the link with a pointer...and a third active node 681. The garbage node 679 is referenced by the node **descriptor** 665 and because a link, instead of a direct pointer, is stored in an active node link 683 the **garbage collection** process can reference the garbage node 679 without affecting the liveness of the garbage node...

25/3,K/8 (Item 8 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00962884
A method and apparatus for optimizing exact garbage collection, using loop operation on pointer arrays
Verfahren und Vorrichtung zur Optimierung der prazisen Speicherbereinigung, bei der Programmschleifen mit Zeiger-Feldern verwendet werden
Procede et dispositif d'optimisation de la recuperation d'espace memoire inutilisee, dans le cas d'operation de bouclage sur des pointeurs d'un champ de donnees.
PATENT ASSIGNEE:
SUN MICROSYSTEMS, INC., (1392737), 901 San Antonio Road, MS PAL1-521, Palo Alto, California 94043, (US), (Proprietor designated states: all)
INVENTOR:
Knippel, Ross C., 587 Highland Avenue, Half Moon Bay, California 94019, (US)
Beylin, Boris, 771 Ames Avenue, Palo Alto, California 94303, (US)
LEGAL REPRESENTATIVE:
Hanna, Peter William Derek (72342), Peter Hanna Associates 11 Mespil Road

, Dublin 4, (IE)
PATENT (CC, No, Kind, Date): EP 874317 A2 981028 (Basic)
EP 874317 A3 990421
EP 874317 B1 010613
APPLICATION (CC, No, Date): EP 98303013 980420;
PRIORITY (CC, No, Date): US 842139 970423
DESIGNATED STATES: DE; FR; GB; NL; SE
INTERNATIONAL PATENT CLASS: G06F-012/02
ABSTRACT WORD COUNT: 130
NOTE:
Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	199844	1444
CLAIMS B	(English)	200124	677
CLAIMS B	(German)	200124	641
CLAIMS B	(French)	200124	856
SPEC A	(English)	199844	15615
SPEC B	(English)	200124	14699
Total word count - document A			17062
Total word count - document B			16873
Total word count - documents A + B			33935

...SPECIFICATION A value used as an address to a node. By locating pointers to nodes a **garbage collection** algorithm determines which nodes are live.
Link (horizontal bar) A **pointer** equivalent comprised of an **offset** into the creation area and a validation value that associates the link with a pointer...and a third active node 681. The garbage node 679 is referenced by the node **descriptor** 665 and because a link, instead of a direct pointer, is stored in an active node link 683 the **garbage collection** process can reference the garbage node 679 without affecting the liveness of the garbage node...

...SPECIFICATION A value used as an address to a node. By locating pointers to nodes a **garbage collection** algorithm determines which nodes are live.
Link (horizontal bar) A **pointer** equivalent comprised of an **offset** into the creation area and a validation value that associates the link with a pointer...and a third active node 681. The garbage node 679 is referenced by the node **descriptor** 665 and because a link, instead of a direct pointer, is stored in an active node link 683 the **garbage collection** process can reference the garbage node 679 without affecting the liveness of the garbage node...

25/3,K/9 (Item 9 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00598861
A system and method for controlling data storage.
System und Verfahren zur Datenspeichersteuerung.
Systeme et procede de controle de stockage de donnees.
PATENT ASSIGNEE:
International Business Machines Corporation, (200120), Old Orchard Road, Armonk, N.Y. 10504, (US), (applicant designated states: DE;FR;GB)
INVENTOR:
Todd, Stephen James Paul, 10 Christchurch Road, Winchester, Hampshire SO23 9FR, (GB)
LEGAL REPRESENTATIVE:
Burt, Roger James, Dr. (52152), IBM United Kingdom Limited Intellectual Property Department Hursley Park, Winchester Hampshire SO21 2JN, (GB)
PATENT (CC, No, Kind, Date): EP 582378 A1 940209 (Basic)
APPLICATION (CC, No, Date): EP 93304794 930618;
PRIORITY (CC, No, Date): GB 9215597 920722

DESIGNATED STATES: DE; FR; GB
INTERNATIONAL PATENT CLASS: G06F-012/02;
ABSTRACT WORD COUNT: 242

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF2	584
SPEC A	(English)	EPABF2	4222
Total word count - document A			4806
Total word count - document B			0
Total word count - documents A + B			4806

...SPECIFICATION surrogate' location). The 'garbage' field of this **descriptor** object 400 is set to 'NULL' to indicate that no special action is to occur when an ESME object of type 'wref' is **garbage collected** . This **descriptor** generation code is called once at system initialization.

2. The second fragment of code is used to generate an ESME **descriptor** object 420, that defines the ESME type 'wref...two changes are necessary to permit the ESME system (first program 10) to incorporate remote **garbage collection** . These changes are made just once and no further action is required for each new type or function incorporated into ESME. The changes are as follows:

1. ESME **descriptor** objects have an extra field 'garbage' added of C type pointer to function. This field...

...90 has to be altered to monitor this 'garbage' value. When any ESME object is **garbage collected** , the **garbage collector** follows the ' **descriptor** ' field that is contained at the head of every ESME object to locate the ESME **descriptor** object that defines the type of the ESME object being **garbage collected** . If the ' **garbage** ' field of the **descriptor** object is NULL, as it will be for a 'wref' object 430 or indeed for...

...itself disposed of.

The extra lines of code added to the ESME (H.L.L.) **garbage collector** 90 in order to effect these changes are as follows:

```
/* garbage collect ESME objected pointed at by pointer e */void gfun();
gfun = e-> descriptor ->garbage;
if (gfun != NULL) efun(e->x);
```

By utilising the above technique the system of...

25/3,K/10 (Item 10 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00165679
Data processing method and apparatus.
Vorrichtung und Verfahren zur Datenverarbeitung.
Dispositif et methode de traitement de donnees.
PATENT ASSIGNEE:
HITACHI, LTD., (204144), 6, Kanda Surugadai 4-chome, Chiyoda-ku, Tokyo 100, (JP), (applicant designated states: DE;FR;GB)
INVENTOR:
Yamano, Koichi, 1-53-10-103, Toyogaoka, Tama-shi Tokyo, (JP)
Takano, Akihiko, 3-6-5-401, Susukino Midori-ku, Yokohama-shi Kanagawa-ken , (JP)
LEGAL REPRESENTATIVE:
Strehl, Schubel-Hopf, Groening (100941), Maximilianstrasse 54 Postfach 22 14 55, W-8000 Munchen 22, (DE)
PATENT (CC, No, Kind, Date): EP 168827 A2 860122 (Basic)
EP 168827 A3 880810
EP 168827 B1 920930
APPLICATION (CC, No, Date): EP 85108952 850717;
PRIORITY (CC, No, Date): JP 84146820 840717; JP 84178317 840829
DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: G06F-009/44;
ABSTRACT WORD COUNT: 66

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	362
CLAIMS B	(German)	EPBBF1	325
CLAIMS B	(French)	EPBBF1	439
SPEC B	(English)	EPBBF1	6130
Total word count - document A			0
Total word count - document B			7256
Total word count - documents A + B			7256

...SPECIFICATION or lazy evaluation is proceeding.
(5) others. When the stack has been filled up, a **garbage collector** operates to compact frames within the stack, and the **stack frame** pointers are updated on the basis of the results.
A **stack frame descriptor** is created in the corresponding frame each time the **stack frame** is secured. In the **stack frame descriptor** , there are set the size of the **stack frame** , received data, and a "results received" flag in the case of receiving a plurality of...

25/3,K/11 (Item 1 from file: 349)
DIALOG(R)File 349:PCT Fulltext

01028566 **Image available**
SYSTEM FOR COMMUNICATING THROUGH MAPS
SYSTEME DE COMMUNICATION PAR CARTES
Patent Applicant/Inventor:
RIEGER Charles J III, 7417 River Falls Drive, Potomac, MD 20854, US, US (Residence), US (Nationality)
Legal Representative:
LEE Michael Q (et al) (agent), Sterne, Kessler, Goldstein & Fox P.L.L.C., 1100 New York Avenue, N.W., Suite 600, Washington, DC 20005-3934, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200358540 A1 20030717 (WO 0358540)
Application: WO 2002US41220 20021224 (PCT/WO US0241220)
Priority Application: US 200125880 20011226
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 13813

Fulltext Availability:
Detailed Description

Detailed Description
... creating a transient account when such a user connects for the first time, and for **garbage collecting** the transient account after a suitable period of inactivity.

Through transient accounts manager 127, the communications server Ill is capable of managing a transient antenna **descriptor** for any user account, i.e., an antenna descriptor that would correspond to the continually...I 1 1 would set up and maintain a temporary account, including a transient antenna **descriptor** , that would time out and be

garbage collected after some predefined period of inactivity.

The communications server I 1 1 is further comprised...

25/3,K/12 (Item 2 from file: 349)
DIALOG(R)File 349:PCT Fulltext
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01028495 **Image available**
HIGH-PERFORMANCE LOG-STRUCTURED RAID
RESEAU REDONDANT DE DISQUES INDEPENDANTS (RAID) HAUTE PERFORMANCE A STRUCTURE JOURNALISEE
Patent Applicant/Assignee:
SWARM NETWORKS INC, 10181 Bubb Road, Cupertino, CA 95014, US, US (Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
YEO Boon-Lock, 969 Sutter Avenue, Sunnyvale, CA 94086, US, US (Residence), SG (Nationality)
LEE Edward K, 707 Continental Circle, #428, Mountain View, CA 94040, US, US (Residence), US (Nationality), (Designated only for: US)
Legal Representative:
MALLIE Michael J (et al) (agent), Blakely, Sokoloff, Taylor & Zafman LLP, 12400 Wilshire Boulevard, 7th Floor, Los Angeles, CA 90025, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200358453 A1 20030717 (WO 0358453)
Application: WO 2002US40159 20021217 (PCT/WO US0240159)
Priority Application: US 2001343942 20011226; US 2002314142 20021209
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 8766

Fulltext Availability:
Detailed Description

Detailed Description
... However, since data is never updated in-place, an additional data structure is needed to **map** array **offsets** to locations in the log. Also, a **garbage collection** mechanism is needed to reclaim no longer used storage that contains overwritten data.

Because all...

25/3,K/13 (Item 3 from file: 349)
DIALOG(R)File 349:PCT Fulltext
(c) 2004 WIPO/Univentio. All rts. reserv.

00991356 **Image available**
TECHNOLOGY INDEPENDENT INFORMATION MANAGEMENT
GESTION D'INFORMATIONS INDEPENDANTE DE LA TECHNOLOGIE
Patent Applicant/Inventor:
BELIN Sven Johan, Orvar Odds vag 2, S-112 54 Stockholm, SE, SE (Residence), SE (Nationality)
BLOMBERG Mats Goran, Karl Gerhardsvag 23, S-133 35 Saltsjobaden, SE, SE (Residence), SE (Nationality)
FLYG Pernilla Rut Charlotte, Sjotorpsvagen 14, S-131 34 Nacka, SE, SE (Residence), SE (Nationality)
AGREN Nils Martin, Friherregatan 98, S-165 58 Hasselby, SE, SE

(Residence), SE (Nationality)
Legal Representative:
ALBIHNS STOCKHOLM AB (et al) (agent), Linnegatan 2, S-114 85 Stockholm, SE,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200321375 A2-A3 20030313 (WO 0321375)
Application: WO 2002SE1594 20020905 (PCT/WO SE0201594)
Priority Application: US 2001317296 20010905
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 11821

Fulltext Availability:
Detailed Description

Detailed Description
... exposed to external actors. The blueprint is created automatically from the Object Definition.

Object Deployment **Descriptor** : An object deployment **descriptor** declares the usage and the level of usage of Object Runtime and Native Environment built-in services such as 5 transactions, concurrency, **garbage collection** , secure communication, etc. Two Deployment **Descriptors** can exist for any object; one that is a part of the object and one...

25/3,K/14 (Item 4 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00971352 **Image available**
STORING AND RETRIEVING OF FIELD DESCRIPTORS IN JAVA COMPUTING ENVIRONMENTS
STOCKAGE ET EXTRACTION DE DESCRIPTEURS DE ZONE DANS DES ENVIRONNEMENTS INFORMATIQUES JAVA
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 4120 Network Circle, MS SCA12-203, Santa Clara, CA 95054, US, US (Residence), US (Nationality)
Inventor(s):
SOKOLOV Stepan, 34832 Dorado Common, Fremont, CA 94555, US,
WALLMAN David, 777 S. Mathilda Avenue, Sunnyvale, CA 94087, US,
Legal Representative:
MAHBOUBIAN Ramin (agent), Beyer Weaver & Thomas, LLP, P.O. Box 778, Berkeley, CA 94704-0778, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200301371 A2-A3 20030103 (WO 0301371)
Application: WO 2002US19539 20020620 (PCT/WO US0219539)
Priority Application: US 2001886536 20010620
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 3641

Fulltext Availability:
Detailed Description

English Abstract
Improved techniques for storing and retrieving field **descriptors** in Java computing environments are disclosed. The techniques can be used to implement **garbage collection** for Java programs in a manner that is more efficient, especially for systems with limited...

Detailed Description
... determine whether a given field is a reference to a Java object, since each type **descriptor** can be a reference. It should be noted that locating and accessing type **descriptors** are performed at run time (e.g., by a **garbage collector**). In some cases, these operations have to be performed again and again during the execution...INVENTION
Broadly speaking, the present invention relates to improved techniques for storing and retrieving field **descriptors** in Java computing environments. As will be appreciated, the techniques can be used in a variety of applications. For example, the
3
techniques can be used to implement **garbage collection** for Java programs in a manner that is more efficient, especially for systems with limited...OF THE INVENTION
The present invention pertains to improved techniques for storing and retrieving field **descriptors** in Java computing environnients. As will be appreciated, the techniques can be used in a variety of applications. For example, the techniques can be used to implement **garbage collection** methods for Java programs in a manner
5
that is more efficient, especially for systems...

25/3,K/15 (Item 5 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00861487 **Image available**
VIRTUAL HEAP FOR A VIRTUAL MACHINE
TAS VIRTUEL DESTINE A UNE MACHINE VIRTUELLE
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
SLAUGHTER Gregory L, 3326 Emerson Street, Palo Alto, CA 94306, US,
SAULPAUGH Thomas E, 6938 Bret Harte Drive, San Jose, CA 95120, US,
TRAVERSAT Bernard A, 2055 California Street, Apt. 402, San Francisco, CA 94109, US,
DUIGOU Michael J, 33928 Capulet Circle, Fremont, CA 94555, US,
Legal Representative:
KOWERT Robert C (agent), Conley, Rose & Tayon, P.C., P.O. Box 398, Austin, TX 78767-0398, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200195106 A2-A3 20011213 (WO 0195106)
Application: WO 2001US16819 20010521 (PCT/WO US0116819)
Priority Application: US 2000587180 20000602
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 26680

Fulltext Availability:

Detailed Description

Detailed Description
... a simple scheme to load and flush data between the store and the in-memory **heap** . In one embodiment, a cache table and **offset** based **address** translation may be used to convert virtual persistent heap references into in-mernory heap references. Successive caching aud **garbage collection** compaction cycles may improve spatial locality so that cache lines may contain related objects. This...

25/3,K/16 (Item 6 from file: 349)
DIALOG(R)File 349:PCT Fulltext
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00861476 **Image available**
SYSTEM AND METHOD FOR MIGRATING PROCESSES ON A NETWORK
SYSTEME ET PROCEDE DESTINES A MIGRER DES PROCESSUS SUR UN RESEAU
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
SLAUGHTER Gregory L, 3326 Emerson Street, Palo Alto, CA 94306, US,
SAULPAUGH Thomas E, 6938 Bret Harte Drive, San Jose, CA 95120, US,
RODRIQUEZ Robert, 48855 Sauvignon Court, Fremont, CA 94539, US,
Legal Representative:
KOWERT Robert C (agent), Conley, Rose & Tayon, P.C., P.O. Box 398, Austin, TX 78767-0398, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200195094 A2-A3 20011213 (WO 0195094)
Application: WO 2001US16818 20010521 (PCT/WO US0116818)
Priority Application: US 2000587113 20000602
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ
DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ
LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG
SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 28408

Fulltext Availability:
Detailed Description

Detailed Description
... a simple scherne to load and flush data between the store and the in-memory **heap** . In one embodiment, a cache table and **offset** based **address** trauslation may be used to convert virtual persistent heap references into in-memory heap references. Successive caching and **garbage collection** compaction cycles may improve spatial locality so that cache lines may contain related objects. This...

25/3,K/17 (Item 7 from file: 349)
DIALOG(R)File 349:PCT Fulltext
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00861475 **Image available**
PROCESS PERSISTENCE IN A VIRTUAL MACHINE
PERSISTANCE DE PROCESSUS DANS UNE MACHINE VIRTUELLE
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
SLAUGHTER Gregory L, 3326 Emerson St., Palo Alto, CA 94306, US,

SAULPAUGH Thomas E, 6938 Bret Harte Dr., San Jose, CA 95120, US,
TRAVERSAT Bernard A, 2055 California St., Apt. 402, San Francisco, CA 94109, US,
DUIGOU Michael J, 33928 Capulet Circle, Fremont, CA 94555, US,
Legal Representative:
CONLEY ROSE & TAYON P C (agent), Kowert, Robert, C., P.O. Box 398, Austin, TX 78767-0398, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200195093 A2-A3 20011213 (WO 0195093)
Application: WO 2001US16795 20010522 (PCT/WO US0116795)
Priority Application: US 2000587078 20000602
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 31933

Fulltext Availability:
Detailed Description

Detailed Description
... a simple scheme to load and flush data between the store and the in-memory **heap** .

In one embodiment, a cache table and **offset** based **address** translation may he used to convert virtual persistent heap references into in-memory heap references. Successive caching and **garbage collection** compaction cyeles may improve spatial locality so that cache lines may contain related objects. This...

25/3,K/18 (Item 8 from file: 349)
DIALOG(R)File 349:PCT Fulltext
(c) 2004 WIPO/Univentio. All rts. reserv.

00855056 **Image available**
WORK-STEALING QUEUES FOR PARALLEL GARBAGE COLLECTION
FILES D'ATTENTE DE DETOURNEMENT DESTINEES A LA RECUPERATION DE L'ESPACE MEMOIRE EN PARALLELE
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, MS PALI-521, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
FLOOD Christine H, 13 Main Street, Westford, MA 01886, US,
AGESEN Ole, 154 Laurel Drive, Needham, MA 02492, US,
DETLEFS David L, 94 Depot Street, Westford, MA 01886, US,
SHAVIT Nir N, 153 Upland Road, Cambridge, MA 02140, US,
ZHANG Xiaolan, 9 Crescent Street, Cambridge, MA 02138, US,
Legal Representative:
PAUL Edwin H (et al) (agent), Cesari and McKenna, LLP, 88 Black Falcon Avenue, Boston, MA 02210, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200188713 A2-A3 20011122 (WO 0188713)
Application: WO 2001US15591 20010515 (PCT/WO US0115591)
Priority Application: US 2000204184 20000515
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 11276

Fulltext Availability:
Detailed Description

Detailed Description
... dynarnically allocated objects are considered reachable, too. Clearly, objects referred to in the execution threads' **call stack** are reachable, as are the objects referred to by register Contents. And an object referred to by any reachable object is also reachable.

The use of automatic **garbage collectors** is advantageous because, whereas a programmer working on a particular sequence of code can perfonn ...

...from some conservative notion of a "root set," e.g., global variables, registers, and the **call stack** , automatic **garbage collectors** obtain global knowledge in a methodical way. By using a **garbage collector** , the programmer is relieved of the need to worry about the application's global state...root. The root set includes, for instance, reference values stored in the rnutator's threads' **call stacks** , the CPU **registers** , and global variables outside the **garbage - collected heap** . An object is also reachable if it is referred to by another reachable object. Objects...knows where the objects are and where they will finally reside; it can calculate new **addresses** and/or **offsets** into the proper card table entries.

The description so far has described a method of dividing among threads the various tasks dynamically identified during part of **garbage collection** cycle, and (inverted exclamation mark)t has given examples of garbage collection process parts that...

25/3,K/19 (Item 9 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00855054 **Image available**
OBJECT SAMPLING TECHNIQUE FOR RUNTIME OBSERVATIONS OF REPRESENTATIVE INSTANCES THEREOF
TECHNIQUE D'ECHANTILLONNAGE D'OBJETS DESTINEE A DES OBSERVATIONS D'EXECUTION D'INSTANCES REPRESENTATIVES CORRESPONDANTES
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, MS UPAL01-521, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
AGESEN Ole, 488 James Road, Apt. H, Palo Alto, CA 94306, US,
GARTHWAITE Alexander T, 2 Burton Avenue, Beverly, MA 01915, US,
HARRIS Timothy L, Churchill College, Room 41C, Cambridge, Cambridgeshire CB3 0DS, GB,
Legal Representative:
O'BRIEN David W Zagorin O'Brien & Graham LLP (agent), Suite 870, 401 West 15th Street, Austin, TX 78701, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200188709 A2-A3 20011122 (WO 0188709)
Application: WO 2001US40747 20010516 (PCT/WO US0140747)
Priority Application: US 2000204455 20000516; US 2001855454 20010515
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English
Filing Language: English
Fulltext Word Count: 10474

Fulltext Availability:
Detailed Description

Detailed Description
... y the allocation time of the object, the application program requesting the object, the allocation **call site** , the type of the data object structure, etc. Once the data object is no longer reachable by a mutator, object termination begins. Typically, a **garbage collector** determines reachability using any of a variety of suitable tecImiques; however, explicit reclamation tecImiques may...

25/3,K/20 (Item 10 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00855047 **Image available**
DYNAMIC ADAPTIVE TENURING OF OBJECTS
GESTION ADAPTATIVE ET DYNAMIQUE DE LA DUREE D'OBJETS
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, MS UPAL01-521, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
AGESEN Ole, 488 James Road, Apt. H, Palo Alto, CA 94306, US,
GARTHWAITE Alexander T, 2 Burton Avenue, Beverly, MA 01915, US,
HARRIS Timothy L, Room 41C, Churchill College, Cambridge, Cambridgeshire CB3 0DS, GB,
Legal Representative:
ZAGORIN O'BRIEN & GRAHAM LLP (et al) (agent), 401 West 15th Street, Austin, TX 78701, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200188701 A2-A3 20011122 (WO 0188701)
Application: WO 2001US40748 20010516 (PCT/WO US0140748)
Priority Application: US 2000204454 20000516; US 2001855453 20010515
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 11694

Fulltext Availability:
Detailed Description

Detailed Description
... identify the allocation time of the object, the application program requesting the object, the allocation **call site** , the type of the data object structure, etc. Once the data object is no longer reachable by a mutator, object termination begins. Typically, a **garbage collector** determines reachability using any of a variety of suitable tecImiques; however, explicit reclamation techniques may...pre-tenuring a particular category of object. As described above, in sorne implernentations, categories are **identified** by allocation **call site** . Thestyleofallocationused(ie.,regularorpre-tenured)maybemodifiedbychanging thetargetofthe - 20 invocation. Typically, such updates occur when mutator tbxeads are suspended for **garbage collection** .

However, in some implementations, an update may be performed without thread suspension using an atomic...

25/3,K/21 (Item 11 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00855045 **Image available**
METHOD FOR USING ATOMIC COMPARE-AND-SWAP OPERATIONS DURING FORWARDING-POINTER INSTALLATION
INSTALLATION DE POINTEUR DE REACHEMINEMENT PAR COMPARAISON-ECHANGE AU NIVEAU ATOMIQUE
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, MS PALI-521, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
FLOOD Christine H, 13 Main Street, Westford, MA 01886, US,
AGESEN Ole, 154 Laurel Drive, Needham, MA 02492, US,
Legal Representative:
PAUL Edwin H (et al) (agent), Cesari and McKenna, LLP, 88 Black Falcon Avenue, Boston, MA 02210, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200188699 A2-A3 20011122 (WO 0188699)
Application: WO 2001US15589 20010515 (PCT/WO US0115589)
Priority Application: US 2000204184 20000515
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 11316

Fulltext Availability:
Detailed Description

Detailed Description
... dynamically allocated objects are considered reachable, too. Clearly, objects referred to in the execution threads' **call stack** are reachable, as are the obj ects referred to by register contents. And an obj ect referred to by any reachable object is also reachable.

The use of automatic **garbage collectors** is advantageous because, whereas a programmer working on a particular sequence of code can perform ...
...from some conservative notion of a "root: set," e.g., global variables, registers, and the' **call stack** , autornatic **garbage collectors** obtain global knowledge in a methodical way. By using a **garbage collector** , the programmer is relieved of the need to worry about the application's

global state...root. The root set includes, for instance, reference values stored in the mutator's threads' **call stacks** , the CPU **registers** , and global variables outside the **garbage - collected heap** . An object is also reachable if it is referred to by another reachable object. Objects...knows where the objects are and where they will finally reside; it can calculate new **addresses** and/or **offsets** into the proper card table entries.

The description so far has described a method of dividing among threads the various tasks dynamically identified during part of **garbage collection** cycle, and (inverted exclamation mark)t has given examples of garbage collection process parts that...

25/3,K/22 (Item 12 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00827949 **Image available**
INCREMENTAL CLASS UNLOADING IN A TRAIN-ALGORITHM-BASED GARBAGE COLLECTOR
DECHARGEMENT DE CLASSE INCREMENTIELLE DANS UN DISPOSITIF DE RECUPERATION DE L'ESPACE MEMOIRE A ALGORITHME TRAIN
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, M/S PALI-521, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
GARTHWAITE Alexander T, 2 Burton Avenue, Beverly, MA 01915, US,
AGESEN Ole, 154 Laurel Drive, Needham, MA 02492, US,
Legal Representative:
BORN Joseph H (et al) (agent), Cesari and McKenna, LLP, 88 Black Falcon Avenue, Boston, MA 02210, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200161472 A2-A3 20010823 (WO 0161472)
Application: WO 2001US4806 20010214 (PCT/WO US0104806)
Priority Application: US 2000504091 20000215
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 13036

Fulltext Availability:
Detailed Description

Detailed Description
... considered reachable throughout a program's life. Such objects are not ordinarily stored in the **garbage collector** 's managed memory space, but they may contain references to dynamically allocated objects that are, and such objects are considered reachable. Clearly, an object referred to in the processor's **call stack** is reachable, as is an object referred to by register contents. And an object referred to by any reachable object is also reachable.

The use of **garbage collectors** is advantageous because, whereas a programmer working on a particular.sequence of code can perform...
...from some conservative notion of a "root set," e.g., global variables, registers, and the **call stack** , automatic **garbage collectors** obtain global knowledge in a methodical way. By using a **garbage collector** , the programmer is relieved of the need to worry about the application's global state...set 52.

The root set consists of reference values stored in the mutator's threads' **call stacks** , the CPU **registers** , and global variables outside the **garbage - collected heap** . An object is also reachable if it is referred to, as object 46 is, by...

25/3,K/23 (Item 13 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00790523 **Image available**
METHOD AND APPARATUS FOR TESTING A PROCESS IN A COMPUTER SYSTEM
PROCEDE ET DISPOSITIF PERMETTANT DE TESTER UN PROCESSUS DANS UN SYSTEME INFORMATIQUE
Patent Applicant/Assignee:

SUN MICROSYSTEMS INC, 901 San Antonio Road, M/S: UPAL01-521, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
UNGAR David, 844 Driftwood Drive, Palo Alto, CA 94555, US,
Legal Representative:
HECKER Gary A (et al) (agent), The Hecker Law Group, Suite 2300, 1925 Century Park East, Los Angeles, CA 90067, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200124009 A1 20010405 (WO 0124009)
Application: WO 2000US25639 20000919 (PCT/WO US0025639)
Priority Application: US 99406502 19990928
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 8660

Fulltext Availability:
Detailed Description

Detailed Description
... method setting the respective pointer to a "null" value, or by removal of a respective **stack frame** in response to completion of its associated method.

In any thread of execution, there may be many **garbage collection** points,
or "gc-points," where **garbage collection** can occur. However, actual **garbage collection** typically takes place at only a fraction of these possible gc-points each time the using a compiler, to facilitate exact **garbage collection** , the compiler may provide information at each gc-point about the set of locations in the **stack frames** that contain pointers to objects or arrays. **Garbage collection** is performed by determining which objects and arrays in the heap are referenced from within...

25/3,K/24 (Item 14 from file: 349)
DIALOG(R)File 349:PCT Fulltext
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00781839 **Image available**
TRAIN-ALGORITHM-BASED GARBAGE COLLECTOR EMPLOYING FIXED-SIZE REMEMBERED SETS
NETTOYEUR A BASE D'ALGORITHME DE TRAINS, UTILISANT DES ENSEMBLES REMEMORES DE TAILLE FIXE
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, MS PALI-521, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
GARTHWAITE Alexander T, 2 Burton Avenue, Beverly, MA 01915, US,
Legal Representative:
BORN Joseph H (agent), Cesari and McKenna, LLP, 88 Black Falcon Avenue, Boston, MA 02110 (et al), US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200114973 A1 20010301 (WO 0114973)
Application: WO 2000US22574 20000817 (PCT/WO US0022574)
Priority Application: US 99377555 19990819
Designated States: AE AG AL AU BA BB BG BR BZ CA CN CR CU CZ DM DZ EE GD GE HR HU ID IL IN IS JP KP KR LC LK LR LT LV MA MG MK MN MX NO NZ PL RO SG SI SK TR TT UA UZ VN YU ZA
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 18321

Fulltext Availability:
Detailed Description

Detailed Description
... considered reachable throughout a program's life. Such objects are not ordinarily stored in the **garbage collector** 's managed memory space, but they may contain references to dynamically allocated objects that are, and such objects are considered reachable. Clearly, an object referred to in the processor's **call stack** is reachable, as is an object referred to by register contents. And an object referred to by any reachable object is also reachable.

The use of **garbage collectors** is advantageous because, whereas a programmer WO 01/14973 PCTIUSOO/22574
5
carry the digital...set 52. The root set consists of reference values stored in the mutator's threads' **call stacks** , the CPU **registers** , and global variables outside the **garbage - collected heap** . An object is also reachable if it is referred to, as object 46 is, by...

25/3,K/25 (Item 15 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00779667 **Image available**
POPULAR-OBJECT HANDLING IN A TRAIN-ALGORITHM-BASED GARBAGE COLLECTOR
GESTION D'OBJETS POPULAIRES DANS UN DISPOSITIF DE RECUPERATION DE L'ESPACE MEMOIRE A ALGORITHME TRAIN
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, MS PALI-521, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
GARTHWAITE Alexander T, 2 Burton Avenue, Beverly, MA 01915, US
Legal Representative:
BORN Joseph H, Cesari and McKenna, LLP, 88 Black Falcon Avenue, Boston, MA 02110, US
Patent and Priority Information (Country, Number, Date):
Patent: WO 200113242 A1 20010222 (WO 0113242)
Application: WO 2000US22685 20000817 (PCT/WO US0022685)
Priority Application: US 99377349 19990819
Designated States: AE AG AL AU BA BB BG BR BZ CA CN CR CU CZ DM DZ EE GD GE HR HU ID IL IN IS JP KP KR LC LK LR LT LV MA MG MK MN MX NO NZ PL RO SG SI SK TR TT UA UZ VN YU ZA
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 21380

Fulltext Availability:
Detailed Description

Detailed Description
... considered reachable throughout a program's life. Such objects are not ordinarily stored in the **garbage collector** 's managed memory space, but they may contain references to dynamically allocated objects that are, and such objects are considered reachable. Clearly, an object referred to in the processor's **call stack** is reachable, as is an

object referred to by register contents. And an object referred to by any reachable object is also reachable.

The use of **garbage collectors** is advantageous because, whereas a programmer working on a particular sequence of code can perform...

...from some conservative notion of a "root set," e.g., global variables, registers, and the **call stack** , automatic **garbage collectors** obtain global knowledge in a methodical way. By using a **garbage collector** , the programmer is relieved of the need to worry about the application's global state...set 52. The root set consists of reference values stored in the inutator's threads' **call stacks** , the CPU **registers** , and global variables outside the **garbage - collected heap** . An object is also reachable if it is referred to, as object 46 is, by ...

25/3,K/26 (Item 16 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00779666 **Image available**
SCALABLE-REMEMBERED-SET GARBAGE COLLECTION
RECUPERATION DE L'ESPACE MEMOIRE A ENSEMBLE DE RAPPEL EVOLUTIF
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, MS PALI-521, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
GARTHWAITE Alexander T, 2 Burton Avenue, Beverly, MA 01915, US
Legal Representative:
BORN Joseph H, Cesari and McKenna, LLP, 88 Black Falcon Avenue, Boston, MA 02110, US
Patent and Priority Information (Country, Number, Date):
Patent: WO 200113241 A1 20010222 (WO 0113241)
Application: WO 2000US22684 20000817 (PCT/WO US0022684)
Priority Application: US 99377473 19990819
Designated States: AE AG AL AU BA BB BG BR BZ CA CN CR CU CZ DM DZ EE GD GE HR HU ID IL IN IS JP KP KR LC LK LR LT LV MA MG MK MN MX NO NZ PL RO SG SI SK TR TT UA UZ VN YU ZA
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 18680

Fulltext Availability:
Detailed Description

Detailed Description
... considered reachable throughout a program's life. Such objects are not ordinarily stored in the **garbage collector** 's managed memory space, but they may contain references to dynamically allocated objects that are, and such objects are considered reachable. Clearly, an object referred to in the processor's **call stack** is reachable, as is an object referred to by register contents. And an object referred to by any reachable object is also reachable.

The use of **garbage collectors** is advantageous because, whereas a programmer Wo 01/13241 PCTIUSOO/22684
5
tem remote from...set 52. The root set consists of reference values stored in the mutator's threads' **call stacks** , the CPU **registers** , and global variables outside the **garbage - collected heap** . An object is also reachable if it is referred to, as object 46 is, by...

25/3,K/27 (Item 17 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00779665 **Image available**
TRAIN-ALGORITHM-BASED GARBAGE COLLECTOR EMPLOYING REDUCED OVERSIZE-OBJECT THRESHOLD
DISPOSITIF DE RECUPERATION DE L'ESPACE MEMOIRE A ALGORITHME TRAIN UTILISANT UN SEUIL D'OBJET SURDIMENSIONNE REDUIT
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, MS PALI-521, Palo Alto, CA 94303, US, US (Residence), US (Nationality)
Inventor(s):
GARTHWAITE Alexander T, 2 Burton Avenue, Beverly, MA 01915, US
Legal Representative:
BORN Joseph H, Cesari and McKenna, LLP, 88 Black Falcon Avenue, Boston, MA 02110, US
Patent and Priority Information (Country, Number, Date):
Patent: WO 200113240 A1 20010222 (WO 0113240)
Application: WO 2000US22683 20000817 (PCT/WO US0022683)
Priority Application: US 99377289 19990819
Designated States: AE AG AL AU BA BB BG BR BZ CA CN CR CU CZ DM DZ EE GD GE HR HU ID IL IN IS JP KP KR LC LK LR LT LV MA MG MK MN MX NO NZ PL RO SG SI SK TR TT UA UZ VN YU ZA
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 18604

Fulltext Availability:
Detailed Description

Detailed Description
... considered reachable throughout a program's life. Such objects are not ordinarily stored in the **garbage collector** 's managed memory space, but they may contain references to dynamically allocated objects that are, and such objects are considered reachable. Clearly, an object referred to in the processor's **call stack** is reachable, as is an object referred to by register contents. And an object referred to by any reachable object is also reachable.

The use of **garbage collectors** is advantageous because, whereas a programmer working on a particular sequence of code can perform...
...from some conservative notion of a "root set," e.g., global variables, registers, and the **call stack** , automatic **garbage collectors** obtain global knowledge in a methodical way. By using a **garbage collector** , the programmer is relieved of the need to worry about the application's global state...set 52. The root set consists of reference values stored in the mutator's threads' **call stacks** , the CPU **registers** , and global variables outside the **garbage - collected heap** . An object is also reachable if it is referred to, as object 46 is, by ...

25/3,K/28 (Item 18 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00779664 **Image available**
REDUCED-COST REMEMBERED-SET PROCESSING IN A TRAIN-ALGORITHM-BASED GARBAGE COLLECTOR
TRAITEMENT A ENSEMBLE DE RAPPEL A COUTS REDUITS DANS UN DISPOSITIF DE RECUPERATION DE L'ESPACE MEMOIRE A ALGORITHME TRAIN
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, MS PALI-521, Palo Alto, CA

94303, US, US (Residence), US (Nationality)
Inventor(s):
GARTHWAITE Alexander T, 2 Burton Avenue, Beverly, MA 01915, US
AGESEN Ole, 154 Laurel Drive, Needham, MA 02492, US
Legal Representative:
BORN Joseph H, Cesari and McKenna, LLP, 88 Black Falcon Avenue, Boston, MA 02110, US
Patent and Priority Information (Country, Number, Date):
Patent: WO 200113239 A1 20010222 (WO 0113239)
Application: WO 2000US22678 20000817 (PCT/WO US0022678)
Priority Application: US 99377137 19990819
Designated States: AE AG AL AU BA BB BG BR BZ CA CN CR CU CZ DM DZ EE GD GE HR HU ID IL IN IS JP KP KR LC LK LR LT LV MA MG MK MN MX NO NZ PL RO SG SI SK TR TT UA UZ VN YU ZA
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 18854

Fulltext Availability:
Detailed Description

Detailed Description
... throughout a program's life. Such ob ects are not
j
ordinarily stored in the **garbage collector** 's managed memory space, but they may contain references to dynamically allocated objects that are, and such objects are considered reachable. Clearly, an object referred to in the processor's **call stack** is reachable, as is an object referred to by register contents. And an object referred to by any reachable object is also reachable.

The use of **garbage collectors** is advantageous because, whereas a programmer WO 01/13239 PCT/USOO/22678
5
tem remote...set 52. The root set consists of reference values stored in the mutator's threads' **call stacks** , the CPU **registers** , and global variables outside the **garbage - collected heap** . An object is also reachable if it is referred to, as object 46 is, by...

25/3,K/29 (Item 19 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00779663 **Image available**
TRAIN-ALGORITHM-BASED GARBAGE COLLECTOR EMPLOYING FARTHEST-FORWARD-CAR INDICATOR
RECUPERATEUR D'ESPACE MEMOIRE A BASE D'ALGORITHME D'APPRENTISSAGE UTILISANT UN INDICATEUR DE BENNE LA PLUS AVANCEE
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC, 901 San Antonio Road, PALI-521, Palo Alto, CA 94303 , US, US (Residence), US (Nationality)
Inventor(s):
GARTHWAITE Alexander T, 2 Burton Avenue, Beverly, MA 01915, US
AGESEN Ole, 154 Laurel Drive, Needham, MA 02492, US
Legal Representative:
BORN Joseph H, Cesari and McKenna, LLP, 88 Black Falcon Avenue, Boston, MA 02110, US
Patent and Priority Information (Country, Number, Date):
Patent: WO 200113238 A1 20010222 (WO 0113238)
Application: WO 2000US22607 20000817 (PCT/WO US0022607)
Priority Application: US 99377654 19990819
Designated States: AE AG AL AU BA BB BG BR BZ CA CN CR CU CZ DM DZ EE GD GE HR HU ID IL IN IS JP KP KR LC LK LR LT LV MA MG MK MN MX NO NZ PL RO SG

SI SK TR TT UA UZ VN YU ZA
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 19085

Fulltext Availability:
Detailed Description

Detailed Description
... considered reachable throughout a program's life. Such objects are not ordinarily stored in the **garbage collector** 's managed memory space, but they may contain references to dynamically allocated objects that are, and such objects are considered reachable. Clearly, an object referred to in the processor's **call stack** is reachable, as is an object referred to by register contents. And an object referred to by any reachable object is also reachable.

The use of **garbage collectors** is advantageous because, whereas a programmer WO 01/13238 PCTIUSOO/22607
5
tem remote from...set 52. The root set consists of reference values stored in the mutator's threads' **call stacks** , the CPU **registers** , and global variables outside the **garbage - collected heap** . An object is also reachable if it is referred to, as object 46 is, by...

25/3,K/30 (Item 20 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00569819 **Image available**
A METHOD FOR ENABLING COMPREHENSIVE PROFILING OF GARBAGE-COLLECTED MEMORY SYSTEMS
PROCEDE AUTORISANT UNE CONFIGURATION COMPLETE DE SYSTEMES DE MEMOIRE RAMASSE-MIETTES
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC,
LIANG Sheng,
GRARUP Steffen,
Inventor(s):
LIANG Sheng,
GRARUP Steffen,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200033192 A1 20000608 (WO 0033192)
Application: WO 99US28089 19991124 (PCT/WO US9928089)
Priority Application: US 98109945 19981125
Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ TZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 17682

Fulltext Availability:
Detailed Description

Detailed Description
... the given event type is not
JVMPI NOT AVAILABLE SU
available.

void CwErmbleGC) (void) ;

Enables **garbage collections** . DisableGC and Enabiecc calls may be nested,
void (*G-etCaIlTrace) (LWMPT CaIlTzace *trace, jint depth)
Called by the profilcr to obtain the current method **call stack** trace for a given thread. The thread is identified by the env-id field in...

25/3,K/31 (Item 21 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00566564 **Image available**
COMPUTER SYSTEM, COMPUTER-READABLE STORAGE MEDIUM AND METHOD OF OPERATING SAME, AND METHOD OF OPERATING THAT SYSTEM
SYSTEME INFORMATIQUE, SUPPORT DE STOCKAGE LISIBLE PAR ORDINATEUR, PROCEDE DE FONCTIONNEMENT ET PROCEDE DE MISE EN SERVICE DUDIT SYSTEME
Patent Applicant/Assignee:
INSIGNIA SOLUTIONS PLC, Insignia House, The Mercury Centre, Wycombe Lane, Wooburn Green, High Wycombe, Buckinghamshire HP10 0HH, GB, GB (Residence), GB (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
PLUMMER Wayne, 6 Sunningdale Close, Booker, High Wycombe, Bucks. HP12 4EN , GB, GB (Residence), GB (Nationality), (Designated only for: US)
CHARNELL William Thomas, Bereton, Nags Head Lane, Great Missenden HP16 0HG, GB, GB (Residence), GB (Nationality), (Designated only for: US)
DARNELL Stephen, 45 Heynes Green, Maidenhead, Berks. SL6 3NA, GB, GB (Residence), GB (Nationality), (Designated only for: US)
DIAS Blaise Abel Alec, 7 North Way, Uxbridge, Middx. UB10 GNG, GB, GB (Residence), GB (Nationality), (Designated only for: US)
GUTHRIE Philippa Joy, 5 Manor Farm Court, Hardwick, Aylesbury, Bucks. HP22 4DH, GB, GB (Residence), GB (Nationality), (Designated only for: US)
KRAMSKOY Jeremy Paul, 12 Claremont Terrace, Portsmouth Road, Long Ditton, Surrey KT7 0XP, GB, GB (Residence), GB (Nationality), (Designated only for: US)
SEXTON Jeremy James, 164 Great Elms Road, Bennetts End, Hemel Hempstead, Herts. HP3 9UQ, GB, GB (Residence), GB (Nationality), (Designated only for: US)
WYNN Michael John, 11 North Town Road, Maidenhead, Berks. SL6 7TQ, GB, GB (Residence), GB (Nationality), (Designated only for: US)
RAUTENBACH Keith, 180 Kingsmead Road, High Wycombe, Bucks. HP11 1JL, GB, GB (Residence), GB (Nationality), (Designated only for: US)
THOMAS Stephen Paul, 16 Lansdowne Way, High Wycombe, Bucks. HP11 1TR, GB, GB (Residence), GB (Nationality), (Designated only for: US)
Legal Representative:
COZENS Paul Dennis (et al) (agent), Mathys & Squire, 100 Grays Inn Road, London WC1X 8AL, GB,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200029937 A2 20000525 (WO 0029937)
Application: WO 99GB788 19990316 (PCT/WO GB9900788)
Priority Application: GB 9825102 19981116
Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW SD SL SZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 81643

Fulltext Availability:
Detailed Description
Claims

Detailed Description

... single activation frame. For each said different barrier a descriptor block may be provided, said **descriptor** blocks preferably being linked to form a linked list. This is a convenient way of coping with multiple barriers.

One particularly important use of the present invention is in **garbage collection** . Hence, said further thread may be the thread of a, preferably concurrent, garbage collector. Preferably...

...frame. The computer system may be adapted to provide for each said different barrier a **descriptor** block, said **descriptor** blocks being linked to form a linked list.

Said further thread may be the thread of a **garbage collector** .

The **garbage collector** may be adapted to make, in a single cycle, an initial and at least one...is a specific function (referred to later as code B) which can be used for **garbage collection** . The general arrangement of the contents of a barrier **descriptor** block 29502 is shown schematically in Figure 5F; one barrier **descriptor** block is provided in memory per return barrier. In the following pseudo-code which describes...

...in the chain.

let frame regisLer be d's barrier link.

endif
de-allocate barrier **descriptor** block d.
continue execution from address r.

The above describes the preferred embodiment of generic return barrier mechanism.

In the specific context of **garbage collection** , the **garbage collector** utilises return barriers to ensure that no attempt is made by another thread to continue...

Claim
... 144 or 145 wherein for each said different barrier a descriptor block is provided, said **descriptor** blocks being linked to form a linked list. 147. A method according to any of Claims 136 to 146 wherein said further thread is the thread of a **garbage collector** . 148. A method according to Claim 147 wherein in a single cycle the garbage collector...to Claim 160, adapted to provide for each said different barrier a descriptor block, said **descriptor** blocks being linked to form a linked list. 162. A computer system according to any of Claims 151 to 161 wherein said further thread is the thread of a **garbage collector** . 163. A computer system according to Claim 162 wherein the garbage collector is adapted to ...

25/3,K/32 (Item 22 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00559119 **Image available**
SYSTEM AND METHOD FOR AUTOMATICALLY AND SELECTIVELY PROMOTING OBJECT VARIABLES TO METHOD FIELDS AND VARIABLES IN A DIGITAL COMPUTER SYSTEM
SYSTEME ET PROCEDE PERMETTANT D'UTILISER AUTOMATIQUEMENT ET SELECTIVEMENT DES VARIABLES D'OBJETS EN TANT QUE CHAMPS ET VARIABLES DE METHODE DANS UN SYSTEME INFORMATIQUE NUMERIQUE
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC,
Inventor(s):
DICE David,
HERRICK Andrew F,

MANN Ronald J,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200022492 A2 20000420 (WO 0022492)
Application: WO 99US23834 19991014 (PCT/WO US9923834)
Priority Application: US 98172153 19981014
Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA GH GM KE LS MW SD SL SZ TZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 7404

Fulltext Availability:
Detailed Description

Detailed Description
... when the method which uses the variables returns, the entire portion of the stack (the " **stack frame** ") used during execution of the method, which will include the variables which were used during the execution of the method, will automatically be eliminated without requiring intervention of the **garbage collection** mechanism.

However, in Java, only simple field variables, such as method variables may be allocated...the object was instantiated, which would point to storage locations, such as those in the **stack frame** for the method for which the object was instantiated, which will be removed when that method returns. Such "inpointers" may confuse the **garbage collector** 32, since, if the method returns the in-pointers will be stale and can result...in the heap. In addition, as noted above, when the method returns, the method's **stack frame** , in which the promoted object variable was allocated, will be automatically eliminated from the stack, thereby reducing the load on the **garbage collection** mechanism. Furthermore, since the object variables have been promoted to method fields or method variable...

25/3,K/33 (Item 23 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00552823 **Image available**
METHOD AND APPARATUS FOR FINDING BUGS RELATED TO GARBAGE COLLECTION IN A VIRTUAL MACHINE
PROCEDE ET APPAREIL POUR TROUVER LES BOGUES LIES A LA RECUPERATION D'ESPACE MEMOIRE DANS UNE MACHINE VIRTUELLE
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC,
Inventor(s):
UNGAR David,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200016196 A1 20000323 (WO 0016196)
Application: WO 99US18685 19990816 (PCT/WO US9918685)
Priority Application: US 98153382 19980915
Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 9375
Fulltext Availability:
Detailed Description

Detailed Description
... method setting the

respective pointer to a "null" value, or by removal of a respective **stack frame** in response to completion of its associated method.

In any thread of execution, there may be many **garbage collection** points, or "gc-points," where **garbage collection** can occur. However, actual **garbage collection** typically takes place at only a fraction of these possible gc-points each time the...

...the compiler provides information at each gc-point about the set of locations in the **stack frames** that contain pointers to objects or arrays. **Garbage collection** is performed by determining which objects and arrays in the heap are referenced from within...is responsible for 20 compiling method code, and is therefore knowledgeable about the contents of **stack frames** at **garbage collection** points. An embodiment of a processing environment and virtual machine implementation are more fully described ...

25/3,K/34 (Item 24 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00546717 **Image available**
METHOD, APPARATUS, AND ARTICLE OF MANUFACTURE FOR FACILITATING RESOURCE MANAGEMENT FOR APPLICATIONS HAVING TWO TYPES OF PROGRAM CODE
PROCEDE, DISPOSITIF ET ARTICLE INDUSTRIEL SIMPLIFIANT LA GESTION DES RESSOURCES DANS LE CAS D'APPLICATIONS COMPORTANT DEUX TYPES DE CODE DE PROGRAMME
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC,
Inventor(s):
AGESEN Ole,
DETLEFS David L,
WHITE Derek R,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200010090 A1 20000224 (WO 0010090)
Application: WO 99US18321 19990812 (PCT/WO US9918321)
Priority Application: US 98134548 19980817
Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 10606

Fulltext Availability:
Detailed Description

Detailed Description
... of the root set includes global variables used to hold references to objects outside a **stack frame** , which makes the objects available to multiple methods.

A **garbage collector** may be exact or conservative in how it treats different sources of references, such as...Java VM uses an indicator in a special frame of Java code stack to control **garbage collection** of the native code objects. This implementation is satisfactory for conservative **garbage collection** but it does not prevent the "leaking" of direct object references outside the JNI **stack frame** . In other words, direct references to objects may be lost during a **garbage collection** cycle when all of the references may not be located in the JNI **stack frame** . Consequently, such an implementation of the JNI does not support an exact collection algorithm.

There is, therefore, a need for a mechanism that facilitates flexible **garbage collection** for memory resources for an application having two types of program code, native code familiar...never in
1 8
use at the same time, a single slot "s" in a **stack frame** for "m" might be used for both. in such a situation, **garbage collector** 122a has difficulty determining whether to consider slot "s" a pointer or a primitive. If...associated with that particular instruction. Therefore, when a safe point is reached during execution, a **garbage collector** can determine from the stack map where each pointer is located in the **stack frame** at the time the respective instruction is executed. Using this information, the **garbage collector** knows exactly where all pointers are located.

Stack maps can be generated at any point before **garbage collection** . For example, they can be generated when the program is compiled or during program execution.

Figure 4 is a block diagram illustrating an example of a stack map. In the **stack frame** 410 associated with a method of thread n, method pointer 412 points to method block...
...determine pointer locations with certainty.

To find the stack map associated with a particular method, **garbage collector** 122a first steps through each thread data structure to access the target stacks, and uses the method pointer in the **stack frame** to access the corresponding set of stack maps. **Garbage collector** 122a then uses the stack map corresponding
20
to the line of code at which the method was stopped to determine the **stack frame** locations having pointers referencing objects. Further details on the use of a stack map in this fashion for **garbage collection** can be found in 0. Agesen, D. Detlefs, J.E.B. Moss, "Garbage Collection and...indirect pointer may copy a direct pointer value into a location not known by the **garbage collector** to contain such a pointer. Thus, **garbage collection** is not permitted during inconsistent regions of program code because it is not possible to determine exactly which slots in the **stack frame** are pointers to objects in the heap. If the **garbage collector** relocates an object (as is often the case with a compacting **garbage collector** , for example), the collector may fail to update direct pointers that were obtained by dereferencing...

25/3,K/35 (Item 25 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00537512 **Image available**
FEEDBACK-BASED MEMORY ALLOCATION OPTIMIZATION IN A GARBAGE COLLECTION MEMORY MANAGEMENT SCHEME
OPTIMISATION DE L'ATTRIBUTION DE MEMOIRE PAR RETROACTION DANS UN PROGRAMME DE GESTION DE LA RECUPERATION DE L'ESPACE MEMOIRE
Patent Applicant/Assignee:
SUN MICROSYSTEMS INC,
Inventor(s):
WOLCZKO Mario,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200000885 A2 20000106 (WO 0000885)
Application: WO 99US13896 19990622 (PCT/WO US9913896)
Priority Application: US 98107382 19980630
Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
Publication Language: English

Fulltext Word Count: 5257
Fulltext Availability:
  Detailed Description

Detailed Description
... collection following the recompilation of the method containing the allocation site. At the end of **garbage collection** of the older generation, space in the longevity database corresponding to the recompiled allocation site may also be reclaimed.

As described above, an improved **garbage collection** system observes allocation **call sites** in a generational memory scheme that are producing
1 0 long-lived objects. When program...

25/3,K/36 (Item 26 from file: 349)
DIALOG(R)File 349:PCT Fulltext
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00514129 **Image available**
TRANSPARENT GARBAGE COLLECTION OF RESOURCES
RECUPERATION TRANSPARENTE DES RESSOURCES
Patent Applicant/Assignee:
  GEODESIC SYSTEMS INC,
  SPERTUS Michael F,
Inventor(s):
  SPERTUS Michael F,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 9945481 A1 19990910
  Application: WO 99US4528 19990302 (PCT/WO US9904528)
  Priority Application: US 9876626 19980303
Designated States: CA JP US AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Publication Language: English
Fulltext Word Count: 8082

Fulltext Availability:
  Detailed Description

Detailed Description
... 121, its destructor will never be executed and not only object 121, but also font **descriptor** 127 and rendering 131 will have leaked.

As can be seen from FIG. 1, having a **garbage collector** detect that object 121 is no longer in use and freeing object 121 will not...

...I's memory, and as far io as font engine 129 can determine, both font **descriptor** 127 and rendering 131 are still in use.

In prior art **garbage collectors** , this problem has been solved by providing registration functions that explicitly indicate to the **garbage collector** that a destructor is to be executed when an object is freed. When the programmer...

25/3,K/37 (Item 27 from file: 349)
DIALOG(R)File 349:PCT Fulltext
(c) 2004 WIPO/Univentio. All rts. reserv.

00479459 **Image available**
DATA PROCESSOR WITH LOCALISED MEMORY RECLAMATION
PROCESSEUR DE DONNEES A RECUPERATION DE MEMOIRE LOCALISEE
Patent Applicant/Assignee:
  KONINKLIJKE PHILIPS ELECTRONICS N V,
  PHILIPS AB,
Inventor(s):
  HOULSDWORTH Richard James,

Patent and Priority Information (Country, Number, Date):
Patent: WO 9910811 A1 19990304
Application: WO 98IB1087 19980716 (PCT/WO IB9801087)
Priority Application: GB 9717715 19970822
Designated States: JP KR AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Publication Language: English
Fulltext Word Count: 5350

Fulltext Availability:
Detailed Description

English Abstract
...remainder are compacted to free space in the memory (HM). To enable localising of the **garbage collection** procedure, reference stacks (RS) are provided for each thread **stack frame** (SF) such as to identify, preferably via a per-thread reference table (TT), data objects...

Detailed Description
... the one thread may be deleted as soon as the relevant thread memory stack section (**stack frame**) has cleared. In this way, these singly referenced objects may be **garbage collected** on a "local" basis rather than congesting a global **garbage collection** . There is one exception to this, where pointers remain in other data objects even after...the above-described functionality of the reference structures is split into the reference buffer per **stack frame** and thread table per thread. This arrangement acts as an interface to a stack for **garbage collection** purposes, supporting low-overhead reference counting and removing the need for conservative scanning of the...virtual memory management.

In the arrangement shown, it is the heap memory HM for which **garbage collection** is performed such that data objects are removed following their last or only reference by a program. Each operating program thread has its own collection of **stack frames** SF and, to localise the **garbage collection** process (as will be described), each **stack frame** is provided with ...functioning as follows. The data objects DO are allocated on the global heap, with the **garbage collection** process attempting to identify unreachable data objects (i.e. objects having no pointers to them in any **stack frame** or other data object) and delete them, returning free space for new data objects. Each...As the reference stacks RS are of fixed size, in extreme cases where a 5 **stack frame** refers to a large number of data objects, a reference stack may overflow. On detecting that a reference stack is reaching fullness, a localised **garbage collection** operation is performed for the reference stack contents. The collection operation suitably begins with the...

...time, such as to split the functionality of the above-described reference structures into per- **stack - frame** reference buffers or stacks and perthread thread tables. For **garbage collection** purposes, the thread table is used to mark all objects referenced by that thread. The ...

...the object. The reference buffer RS 0 containing the reference is associated with the lowest **stack frame** SF that could contain the reference: it is possible that references to the object in the lowest **stack frame** may get overwritten, although this will be detected by the local **garbage collection** process when the **stack frame** is destroyed or the reference buffer overflows. As before, entries are passed down the stack...is a reference in the active reference stack; there are no references in the current **stack frame** other than those involved in the delete operation itself;
the reference count for the object indicates that there are no other references to the object.

Local **garbage collection** methods can be used in connection with the known technique of generational (or "ephemeral") garbage...

25/3,K/38 (Item 28 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00460388 **Image available**
HARDWARE ACCELERATOR FOR AN OBJECT-ORIENTED PROGRAMMING LANGUAGE
ACCELERATEUR DE MATERIEL POUR LANGAGE DE PROGRAMMATION ORIENTE OBJET
Patent Applicant/Assignee:
iREADY CORPORATION,
Inventor(s):
POFF Thomas C,
MINAMI John Shigeto,
KOYAMA Ryo,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9850852 A1 19981112
Application: WO 98US8719 19980430 (PCT/WO US9808719)
Priority Application: US 9745951 19970508; US 97965540 19971106
Designated States: AL AU BA BB BG BR CA CN CU CZ EE GE GW HU ID IL IS JP KP KR LC LK LR LT LV MG MK MN MX NO NZ PL RO SG SI SK SL TR TT UA UZ VN YU GH GM KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 11610
Fulltext Availability:
Detailed Description

Detailed Description
... instruction set, a set of registers, an area for storing methods, a stack, and a **garbage - collected heap** . The Java virtual machine **registers** temporarily hold the data representing the machine's state. The
2
registers affect the machine...

25/3,K/39 (Item 29 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00431190 **Image available**
LOG BASED DATA ARCHITECTURE FOR A TRANSACTIONAL MESSAGE QUEUING SYSTEM
ARCHITECTURE DE DONNEES A JOURNALISATION POUR SYSTEME TRANSACTIONNEL DE GESTION DE FILES D'ATTENTE DE MESSAGES
Patent Applicant/Assignee:
MITSUBISHI ELECTRIC INFORMATION TECHNOLOGY CENTER AMERICA INC,
Inventor(s):
WONG David W H,
SCHWENKE Derek L,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9821654 A1 19980522
Application: WO 97US20561 19971111 (PCT/WO US9720561)
Priority Application: US 9630905 19961114
Designated States: AU CA CN IL JP KR MX NO NZ SG AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Publication Language: English
Fulltext Word Count: 104413

Fulltext Availability:
Detailed Description
Detailed Description
... unique feature, the entire queue can be scanned in a single pass. Moreover, on-disk **garbage collection** is always a linear process. Additionally, there exists a number of Queue Entry **Map** Tables on the same file, with the unique sequence number of the most recent table...

25/3,K/40 (Item 30 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00358769 **Image available**
SYSTEM AND METHOD FOR SUPERIMPOSING ATTRIBUTES ON HIERARCHICALLY ORGANIZED FILE SYSTEMS
SYSTEME ET PROCEDE DESTINES A APPLIQUER DES ATTRIBUTS A DES SYSTEMES DE FICHIERS A ORGANISATION HIERARCHISEE
Patent Applicant/Assignee:
TRUSTED INFORMATION SYSTEMS INC,
Inventor(s):
BADGER M Lee,
STERNE Daniel F,
SHERMAN David L,
TAJALLI Homayoon,
DALVA David I,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9641283 A1 19961219
Application: WO 96US9275 19960605 (PCT/WO US9609275)
Priority Application: US 95475991 19950607
Designated States: AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG UZ VN KE LS MW SD SZ UG AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 12351

Fulltext Availability:
Detailed Description

Detailed Description
... possible. For example, in one alternative embodiment, a system might require that unique path name
descriptors be passed to an ADB 700 in a set attribute(pd, option, attr)
operation. Another alternative embodiment provides " **garbage collection** " that
would also remove associations that no longer have an effect. These and other variations...

25/3,K/41 (Item 31 from file: 349)
DIALOG(R)File 349:PCT Fulltext

00267111 **Image available**
COMPUTER ARCHITECTURE FOR PARALLEL DATA TRANSFER IN DECLARATIVE COMPUTER LANGUAGES
ARCHITECTURE INFORMATIQUE DESTINEE AU TRANSFERT DE DONNEES PARALLELE DANS DES LANGAGES INFORMATIQUES DECLARATIFS
Patent Applicant/Assignee:
EUROPEAN INSTITUTE OF TECHNOLOGY,
MILIKOWSKI Robert,
VREE William Gerard,
Inventor(s):
MILIKOWSKI Robert,
VREE William Gerard,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9415280 A2-A3 19940707
Application: WO 93EP3636 19931220 (PCT/WO EP9303636)
Priority Application: AT 992311586 19921218
Designated States: JP US AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
Publication Language: German
Fulltext Word Count: 8543

Fulltext Availability:
  Detailed Description

Detailed Description
... either a maximum-heap register 31 or, when data is
  to be written to the **heap** memory section, an adder 32. The
  maximum- **heap** **register** 31 contains the address of the top of that
  part of the address space allocated to the heap and it is loaded
  at load time or by a heap **garbage** **collection** routine. A test
  comparator 34 compares the local **heap** pointer held by a **register**
  with the contents of the **register** 31 and, if equal or the
  former is greater than the latter, generates an interrupt for the
  global processing unit which runs the **heap** **garbage** **collection**
  routine. However since only one of the **heap** modules needs to
  perform this task, the maximum- **heap** **registers** 31 of all **heap**
  modules except one are loaded to store a value which is too large
  so that...holding the addresses
  in the second memory of routines for dealing with stack overflow
  and **garbage** **collection** . The interrupts which trigger these two
  routines are indicated by dashed arrows 54 and occur when the
  contents of the max stack and max **heap** **registers** , respectively,
  in the hinges are reached.
  Registers 55 and 56 are used to hold selected values
  represented by one bit or a...

25/3,K/42 **(Item 32 from file: 349)**
DIALOG(R)File 349:PCT Fulltext
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00106554 **Image available**
DATA PROCESSING SYSTEM
SYSTEME DE TRAITEMENT DE DONNEES
Patent Applicant/Assignee:
  INTEL CORP,
Inventor(s):
  COLLEY S,
  RATTNER J,
  COX G,
  SWANSON R,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 8102477 A1 19810903
  Application: WO 80US205 19800228 (PCT/WO US8000205)
  Priority Application: WO 80US205 19800228
Designated States: DE GB JP AT CH DE FR GB LU NL SE
Publication Language: English
Fulltext Word Count: 139912

Fulltext Availability:
  Detailed Description
Detailed Description
... a segment descriptor in which the bit is zero. While much
  of the reclamation of **descriptors** and segments can be accomplished via
  the path-count mechanism, reclamation of cyclic-or self-referential
  structures
  cannot be accomplished without a software facility known as **garbage**
  collection . The hardware-maintained reclamation bit is des%igned to
  assist software in the imiDlementation of...This information may be quite
  useful if the
  operation intends to move a segment. Segment **descriptor** inspection also
  gives a operation the ability to determine how many access **descriptors**
  are in existence for the segment. This is helpful when performing memory
  man@
  agement (e.g., **garbage** **collection**). Segment **descriptor** inspection
  also
  gives an operation the ability to determine the transparency state of a
  level in an access path if the **descriptor** referenced is a path level

descriptor as opposed to a segment descriptor. This is helpful when a operation must dynamically decide...